

Title (en)

Vertical spindle machine tool with tiltable spindle and tiltable automatic tool changer.

Title (de)

Werkzeugmaschine mit schwenkbarer, senkrechter Spindel und mit schwenkbarer, automatischer Werkzeugwechseleinrichtung.

Title (fr)

Machine-outil à broche verticale basculante et changeur d'outils automatique basculant.

Publication

EP 0012553 A1 19800625 (EN)

Application

EP 79302764 A 19791203

Priority

US 96690678 A 19781206

Abstract (en)

The spindle head (72) of a gantry type vertical spindle machining center (10) is slidably mounted on a spindle base (46) which is pivotally mounted on the saddle (36) for rocking movement about a horizontal axis (56) to cause the axis of the spindle to tilt from the vertical. A tool storage magazine (82) is mounted on the spindle base (46) and is tiltable along with the spindle to enable toolholders (78) to be transferred between the spindle and tool storage magazine (82) at any spindle tilt angle. A tool changer arm (86) is mounted on the tool storage magazine (82) for transferring tools between the spindle and the tool storage magazine (82).

IPC 1-7

B23C 1/12; **B23Q 3/157**; **B23B 39/02**

IPC 8 full level

B23Q 3/155 (2006.01); **B23Q 1/52** (2006.01); **B23Q 3/157** (2006.01)

CPC (source: EP KR US)

B23Q 1/52 (2013.01 - EP US); **B23Q 3/157** (2013.01 - KR); **B23Q 3/15733** (2013.01 - EP US); **Y10T 483/1733** (2015.01 - EP US); **Y10T 483/1755** (2015.01 - EP US)

Citation (search report)

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- US 3990585 A 19761109 - JOHANSSON OSKAR REINHOLD
- DE 2524967 A1 19761216 - JUNG GMBH LOKOMOTIVFAB ARN
- US 3344512 A 19671003 - MOSE ZUCHELLINI
- MACHINERY AND PRODUCTION ENGINEERING, Vol. 130, 2 February 1977 London "Tokyo machine tool exhibition" page 108 * page 108; fig. 7 *

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Designated contracting state (EPC)

BE CH DE FR GB IT NL SE

DOCDB simple family (publication)

US 4190948 A 19800304; BR 7907923 A 19800624; CA 1116384 A 19820119; DE 2962926 D1 19820708; EP 0012553 A1 19800625; EP 0012553 B1 19820519; IL 58761 A0 19800229; IL 58761 A 19810913; JP S5577437 A 19800611; JP S6232060 B2 19870713; KR 820000552 B1 19820414; PL 220151 A1 19800908

DOCDB simple family (application)

US 96690678 A 19781206; BR 7907923 A 19791205; CA 340299 A 19791121; DE 2962926 T 19791203; EP 79302764 A 19791203; IL 5876179 A 19791121; JP 15695579 A 19791205; KR 790004282 A 19791205; PL 22015179 A 19791205